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PROSPECTS FOR DEVELOPING METACOMPETENCIES THROUGH MODULAR TEACHING IN THE EDUCATION SYSTEM OF UZBEKISTAN

Hotamova Nigina Islomovna
Uzbekistan, Buxara
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Abstract. The article examines how modular teaching can serve as a vehicle for cultivating metacompetencies — the higher-order capacities that allow learners to plan, monitor, evaluate and transfer their own learning — within the ongoing reform of education in the Republic of Uzbekistan. Drawing on the national regulatory framework, international competence models and classical theories of modular instruction, the author argues that the credit-module system introduced in Uzbek higher education creates structural preconditions for the development of metacompetencies. These preconditions, however, remain underused unless modules are deliberately designed around reflection, self-assessment and learner autonomy. The paper proposes a four-component model linking the architecture of a module with metacognitive, self-regulatory, communicative-reflective and digital-adaptive competences, outlines the conditions for its implementation and identifies the principal risks, including formalism in module design, insufficient teacher preparedness and assessment practices oriented toward the mere reproduction of knowledge.

Keywords: metacompetence; modular teaching; credit-module system; metacognition; self-regulated learning; competence-based education; educational reform; Uzbekistan.

1. Introduction

Over the past decade the education system of Uzbekistan has entered a phase of deep institutional transformation. The adoption of the new Law "On Education" in 2020[1] and of the Concept for the Development of the Higher Education System until 2030[2] shifted the policy emphasis from the transmission of a fixed body of knowledge toward the formation of competences that graduates are able to apply in rapidly changing professional environments. The Development Strategy of New Uzbekistan for 2022–2026 has further reinforced this orientation by linking the quality of human capital to the long-term competitiveness of the national economy[3].

In this context, a narrow understanding of competence as a set of job-specific skills is no longer sufficient. Contemporary labour markets reward people who can learn quickly, reorganise their knowledge when circumstances change and take responsibility for their own professional growth. Such abilities stand above particular subject competences and govern the way those competences are acquired and used; in the scholarly literature they are increasingly described as metacompetencies. International frameworks, including the OECD Learning Compass 2030 and the European reference framework of key competences for lifelong learning, explicitly place learning

[1] Law of the Republic of Uzbekistan "On Education" No. ZRU-637 of 23 September 2020 // National Database of Legislation of the Republic of Uzbekistan. – URL: https://lex.uz
[2] Decree of the President of the Republic of Uzbekistan No. PF-5847 of 8 October 2019 "On approval of the Concept for the Development of the Higher Education System of the Republic of Uzbekistan until 2030" // National Database of Legislation. – URL: https://lex.uz
[3] Decree of the President of the Republic of Uzbekistan No. PF-60 of 28 January 2022 "On the Development Strategy of New Uzbekistan for 2022–2026" // National Database of Legislation. – URL: https://lex.uz

to learn, reflection and self-regulation among the core outcomes of modern education[4].

Modular teaching, which has entered Uzbek universities primarily in the form of the credit-module system[5], is often discussed merely as an administrative or organisational innovation. The aim of this article is to demonstrate that its pedagogical potential is considerably broader: when designed with care, a module becomes a structured environment in which learners systematically practise goal setting, self-monitoring and self-evaluation. Accordingly, the study pursues three objectives: to clarify the concept of metacompetence in relation to modular instruction, to analyse the conditions that the current reform creates for their joint development, and to outline realistic prospects and risks for the education system of Uzbekistan.

2. Theoretical background: metacompetence and modular instruction

The notion of competence entered educational discourse as an attempt to bridge the gap between knowing something and being able to use it effectively. F. E. Weinert interpreted competences as the cognitive abilities and skills that individuals possess or can acquire in order to solve particular problems, combined with the motivational, volitional and social readiness to apply these solutions in varying situations[6]. Metacompetence, by contrast, concerns the management of one's own competences: recognising which of them a situation requires, noticing when they are insufficient and acquiring new ones. In the Cedefop typology of knowledge, skills and competences, meta-competence is treated as the capacity that facilitates the acquisition of all other competences[7].

The psychological foundation of the concept lies in the theory of metacognition. J. Flavell distinguished between metacognitive knowledge and metacognitive experiences and showed that the ability to observe and regulate one's own thinking is a decisive factor of successful learning[8]. B. Zimmerman subsequently described self-regulated learning as a cyclical process comprising the phases of forethought, performance and self-reflection[9]. It follows from these theories that metacompetencies cannot simply be transmitted as content. They take shape only when the learner passes repeatedly through the cycle of planning, acting and evaluating under conditions that make this cycle explicit and open to analysis.

Modular instruction provides exactly such conditions. In its classical interpretation, a module is a self-contained unit of learning with explicitly formulated objectives, an organised sequence of learning activities and built-in assessment that allows the learner to judge the level of mastery before moving on[10]. Within the post-Soviet pedagogical tradition, P. A. Yutsyavichene developed a

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[4] OECD. The Future of Education and Skills: Education 2030. – Paris: OECD Publishing, 2018; Council Recommendation of 22 May 2018 on key competences for lifelong learning // Official Journal of the European Union. – 2018. – C 189. – P. 1–13.

[5] Resolution of the Cabinet of Ministers of the Republic of Uzbekistan No. 824 of 31 December 2020 "On measures to improve the system related to the organization of the educational process in higher education institutions" // National Database of Legislation. – URL: https://lex.uz

[6] Weinert F. E. Concept of competence: a conceptual clarification // Defining and Selecting Key Competencies / ed. by D. S. Rychen, L. H. Salganik. – Seattle; Toronto; Bern; Göttingen: Hogrefe & Huber, 2001. – P. 45–65.

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[8] Flavell J. H. Metacognition and cognitive monitoring: A new area of cognitive-developmental inquiry // American Psychologist. – 1979. – Vol. 34, No. 10. – P. 906–911.

[9] Zimmerman B. J. Becoming a self-regulated learner: An overview // Theory Into Practice. – 2002. – Vol. 41, No. 2. – P. 64–70.

[10] Goldschmid B., Goldschmid M. L. Modular instruction in higher education: A review // Higher Education. – 1973. – Vol. 2, No. 1. – P. 15–32; Russell J. D. Modular Instruction: A Guide to the Design, Selection, Utilization and Evaluation of Modular Materials. – Minneapolis: Burgess Publishing, 1974.

system of principles of modular teaching — among them modularity, structuring of content into separate elements, flexibility, conscious perspective and the parity of teacher–student interaction — stressing that the learner works largely independently with an individualised programme while the teacher acts as a consultant and organiser[11]. Remarkably, each of these principles has a direct counterpart among the components of metacompetence: transparent objectives support goal setting, the internal structure of the module supports planning, and regular check-points support self-monitoring.

Thus, modular teaching and the development of metacompetencies are not two independent lines of educational innovation. The former supplies an organisational form, while the latter defines the deeper purpose that this form can serve. The theoretical task, therefore, is to specify how the elements of a module should be designed so that they systematically activate the learner's reflective and self-regulatory activity.

3. Materials and methods

The study relies on a qualitative analysis of three groups of sources: normative documents regulating the modernisation of education in Uzbekistan; international frameworks of key competences; and theoretical works on modular instruction, metacognition and self-regulated learning. Comparative and structural-functional analysis was applied to correlate the elements of a module with the components of metacompetence, while pedagogical modelling made it possible to construct a conceptual model of their interaction. The conclusions are theoretical and prognostic in nature and are intended to serve as a basis for subsequent empirical verification in Uzbek higher education institutions and vocational schools.

4. Results: a model of metacompetence development within the module

The analysis made it possible to distinguish four groups of metacompetencies whose development can be embedded in modular teaching: metacognitive competence (awareness of one's own knowledge, goals and thinking strategies); self-regulatory competence (planning, time management and monitoring of progress); communicative-reflective competence (the ability to discuss, justify and revise one's learning strategies in interaction with others); and digital-adaptive competence (the ability to search for, evaluate and organise information in a changing digital environment). The correspondence between the structural elements of a module and these components is summarised in Table 1.

Table 1. Correspondence between module elements and components of metacompetence

Module element	Metacompetence component	Typical learning activity
Learning objectives and expected outcomes	Metacognitive (goal awareness)	Learners restate objectives in their own words and set personal targets
Entry diagnostics	Metacognitive (self-knowledge)	Pre-test combined with self-rating of confidence
Learning elements and individual pathways	Self-regulatory (planning, time management)	Choice of pace and sequence; drawing up an individual study plan
Intermediate check-points	Self-regulatory (monitoring)	Self-check tests, learning logs, correction of the plan

[11] Yutsyavichene P. A. Teoriya i praktika modul'nogo obucheniya [Theory and practice of modular teaching]. – Kaunas: Shviesa, 1989.

Group tasks and peer review	Communicative-reflective	Feedback based on rubrics; discussion of learning strategies
Digital resources (LMS)	Digital-adaptive	Searching, evaluating and structuring online information
Final assessment and reflection	All components (evaluation and transfer)	Reflective essay, portfolio, plan for the next module

The model is based on the premise that metacompetencies develop not alongside subject content but through it. Every element of the module is assigned a dual function: it organises the mastery of disciplinary material and, simultaneously, requires the learner to perform a specific reflective or self-regulatory action. This logic agrees with the principle of constructive alignment formulated by J. Biggs and C. Tang, according to which intended learning outcomes, learning activities and assessment tasks must be coherently aligned with one another[12]. If metacompetencies are declared among the outcomes of a module, they must also be reflected in its activities and in its assessment criteria; otherwise, the declaration remains purely formal.

Within this model the role of the teacher changes substantially. Instead of being the main source of information, the teacher becomes a designer of the learning environment, a tutor and a consultant who helps students interpret the results of their self-checks and adjust their strategies. Short metacognitive prompts — questions such as "What was the most difficult part of this element and why?" or "Which strategy will you change in the next unit?" — turn routine stages of the module into occasions for reflection.

Assessment deserves special attention. Where the final control of a module is limited to reproductive tests, learners quickly adapt and reduce their activity to memorisation, which neutralises the metacognitive potential of modular teaching. Conversely, criterion-based assessment combined with self-assessment and peer assessment makes quality standards transparent and teaches students to apply them to their own work. Research has shown that metacognitive awareness can be measured with reliable instruments and is associated with academic performance[13], while large-scale syntheses of educational research place metacognitive strategies among the interventions with a considerable effect on achievement[14]. This means that the impact of modular design on metacompetencies can, and should, be monitored empirically.

5. Discussion: prospects and risks for Uzbekistan

The first and most obvious prospect is connected with higher education. The transition of Uzbek universities to the credit-module system, combined with the policy of expanding academic mobility and compatibility with the European Credit Transfer and Accumulation System, has substantially increased the share of independent study in the total workload of students. The state programme for the development of education and science in the new period[15] treats the quality of

[12] Biggs J., Tang C. Teaching for Quality Learning at University: What the Student Does. – 4th ed. – Maidenhead: Open University Press; McGraw-Hill Education, 2011.
[13] Schraw G., Dennison R. S. Assessing metacognitive awareness // Contemporary Educational Psychology. – 1994. – Vol. 19, No. 4. – P. 460–475.
[14] Hattie J. Visible Learning: A Synthesis of Over 800 Meta-Analyses Relating to Achievement. – London; New York: Routledge, 2009.
[15] Decree of the President of the Republic of Uzbekistan No. PF-6108 of 6 November 2020 "On measures for the development of education and science in the new period of development of Uzbekistan" // National Database of Legislation. – URL: https://lex.uz

independent learning as one of the conditions for raising the international competitiveness of national universities. Independent work, however, produces the expected results only when students are able to organise it themselves. Consequently, modules that systematically train planning, self-monitoring and reflection convert independent study hours from a formal requirement into genuine self-regulated learning.

The second prospect concerns general secondary, vocational and teacher education. The renewal of curricula and the introduction of competence-based educational standards open the way for modular programmes in technical schools and colleges, where learning is closely tied to practical tasks and the ability to adapt to new technologies is especially valued. For teachers themselves, modular in-service training courses can model the very approach that they are expected to apply in the classroom: a teacher who has experienced reflective, self-paced learning is far more likely to design such learning for students.

The third prospect is related to digitalisation. Learning management systems already used by many Uzbek universities make it technically possible to provide individual learning pathways, automated self-checks, electronic portfolios and learning analytics. When these tools are integrated into module design, they not only support the development of digital-adaptive competence but also make the learner's progress visible both to the student and to the teacher, thereby strengthening feedback loops that are crucial for metacognitive growth.

At the same time, several risks should be acknowledged. The most serious of them is formalism, when a course is divided into modules and credits only on paper while the teaching itself remains lecture-centred and reproductive. A second risk lies in the insufficient preparedness of teachers to design modules, write measurable learning outcomes and use criterion-based and formative assessment. A third concerns the shortage of high-quality modular materials in the Uzbek language and the uneven digital infrastructure across regions, which may deepen inequality between metropolitan and peripheral institutions. Finally, an excessive number of small control events may overload students and turn self-monitoring into a mechanical routine instead of a meaningful practice.

Mitigating these risks requires a set of coordinated measures: including metacompetencies explicitly in the learning outcomes of educational programmes; developing methodological guidelines and exemplary modules for different fields of study; organising systematic professional development for teachers in module design and assessment; creating national repositories of open modular resources in Uzbek; and introducing validated instruments for monitoring students' metacognitive and self-regulatory development.

6. Conclusion

The study shows that modular teaching possesses significant, and so far largely unrealised, potential for developing metacompetencies in the education system of Uzbekistan. The structural features of a module — explicit objectives, entry diagnostics, flexible pathways, intermediate check-points and final reflection — correspond closely to the phases of self-regulated learning and can therefore serve as a framework for the systematic training of metacognitive, self-regulatory, communicative-reflective and digital-adaptive competences.

The ongoing reforms, above all the credit-module system in higher education and the broader shift toward competence-based standards, have created favourable institutional conditions for this work. Whether these conditions translate into real educational outcomes depends on the quality of module design, the readiness of teachers and the alignment of assessment with declared goals. Promising directions for further research include the empirical testing of the proposed model in Uzbek universities, the adaptation of instruments for measuring metacompetencies to the national

context and the study of how digital learning environments can best support learners' reflective activity.

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